Is there such a thing as a 'dyadic operationalization'?

Some considerations regarding quantitative research and the interaction model

of business relationships

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ABSTRACT

This paper addresses the challenge of bridging two seemingly incommensurable research traditions,

i.e. the IMP Group tradition related to qualitative and descriptive interaction approaches on the one

hand, and the focal company perspective linked to the resource-based view of the firm with quantitative approaches and the purpose of deriving generalizeable results on the other hand. Our paper tries to find ways of cross-fertilisation between these two research areas. The specific starting point of this paper is represented by the objective of exploring the viability of dyadic analyses of business relationships within a quantitative research design. Thus, this article asks whether or not there is such a thing as a dyadic operationalization, i.e. the possibility of capturing the characteristics of the relationship partners and their (inter)dependence and contingency on each other. The main contribution of such research resides in the possibility to open up more meaningful quantitative work as part of the IMP Group tradition, as well as enriching the often limited focal company perspective of much existing neo-positivistic research on business relationships. Specifically, different ways of using a dyadic unit-of-analysis based on monadic units-of-observations are discussed.

KEYWORDS

Business relationships, Dyadic operationalization, Quantitative, Interaction

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1. Introduction

Research in the tradition of the Industrial Marketing and Purchasing (IMP) Group, using the interaction model of business relationships, has primarily focused on qualitative and descriptive methods. Especially case study analyses dominate the literature. This is due to the fact that business relationships are seen to consist of interdependent actors whose activities within the relationship are contingent on each other. The perceptions and anticipations of the exchange partner's intentions, options, and activities, as well as the business activities themselves, limit companies' operational choices and strategic options with regard to how they act within business relationships. As such, the relationship itself becomes the unit of analysis of the interaction model, the 'in-between' represents the research phenomenon (the *explanandum*), not the actions of firms. As the characteristics of each relationship are unique, i.e. they are time and space-specific in their morphology, no 'general' rules can be derived and only 'thick' descriptions which are able to lay out the concrete make-up of a business relationship are deemed to be possible. Hence, the dominance of case studies of business relationships (or indeed of network structures which are made-up from business relationships) in the IMP.

This is in stark contrast with what can be called the 'American' model of business relationships. Research in this tradition believes that, in line with the managerial and instrumental school of marketing, business actors can to some extent decide themselves how to optimally behave within a relationship. This perspective is influenced by the resource-based view of the firm and conceptually deals with business relationships as some kind of dynamic capabilities. Although the relationships are perceived to be somewhat constraint, e.g. due to resource endowment, or contractual issues, this

research tradition holds that using certain managerial activities in specific ways can enhance business relationships with positive performance effects for the company. Thus, certain managerial guidelines regarding the use and combination of organizational resources are the aim of this kind of research which needs to be derived (and generalised) from observing multiple business relationships. Out outcome of taking this perspective is that it results in an occasionally normative and often quantitative methodological focus. The perspective is not the business relationship itself, but in line with the managerial orientation, one focal company within a business relationship becomes the central unit of analysis.

The challenge is to bridge these two seemingly incommensurable research traditions and understand if they can cross-fertilise each other. The specific starting point of this paper is represented by the objective of exploring the viability of dyadic analyses of business relationships within a quantitative research design. Thus, this article asks whether or not there is such a thing as a dyadic operationalization, i.e. the possibility to capture the characteristics of the relationship partners and their dependence and contingency on each other. The main contribution of such research resides in the possibility to open up more meaningful quantitative work as part of the IMP Group tradition, as well as enriching the often limited focal company perspective of much existing neo-positivistic research on business relationships.

This conceptual article will proceed as follows: Initially, a parsimonious overview of existing research on business relationships is provided. Based on this, a model of five different types of quantitative operationalizations of business relationships is derived. This is categorised via different unit of analysis underlying these operationalizations

2. Research on Business Relationships

Firms search for ways to differentiate themselves through value creation in business relationships (Ulaga and Eggert, 2006). . The importance of relationships in business-to-business markets has been emphasized by the IMP research group (Håkansson, 1982; Ford, 1984) by introducing the interaction model. The Interaction approach focuses on the relationship between the buying and selling firms as

an interaction process. It argues that marketing mix approach, which is concerned with optimal combination and the contents of marketing mix, is not appropriate when firms do not have a lot of customers which can be treated in a standardized way. It emphasizes the need to understand interaction and relationship between buyers and sellers in industrial markets (Håkansson et al., 1976; Håkansson and Wootz, 1979). Anderson et al. (1994) recommended that business relationships to be studied as dyads, emphasizing on the need for examining them within the broader business networks within which they are embedded. They argued that the effects on the two partner firms in a dyadic relationship are the primary functions; secondary functions (network functions) capture the effects of a relationship because it is connected to other relationships (within the network in which they operate).

Some studies have introduced constructs of relationship quality/success. Trust was always shown to be important (e.g., Crosby et al., 1990; Ganesan, 1994; Mohr and Spekman, 1994). There have been several studies trying to find constructs of business relationship quality. For instance Crosby et al. (1990) used satisfaction and trust as indicators for measuring relationship quality, Mohr and Spekman (1994) suggested that significant characteristics of any successful partnership are commitment, coordination and trust; communication quality and participation; and conflict resolution through joint problem solving. They used two indicators of partnership success: an objective indicator (sales volume flowing between the dyadic partners) and an affective measure (satisfaction of one party with the other). In another study, Ganesan (1994) identified trust and dependence as the constructs that play a key role in determining the long-term orientation of business partners.

Storbacka et al. (1994) discussed factors affecting customer profitability in light of the service quality and customer satisfaction. They (pp. 23) conceptualized a relationship profitability model that "incorporates the basic sequence: service quality leads to customer satisfaction, which leads to relationship strength, which leads to relationship longevity, which leads to customer relationship profitability". Relationship strength is their indicator of relationship quality. Wilson and Jantrania (1995) proposed seven characteristics for a successful business-to-business relationship (i.e. constructs of value in a relationship), which are goal compatibility, trust, satisfaction, investments,

structural bonds, social bonds, and the relative level of investment in alternative relationships. They emphasized that the goals of relationship development are to create satisfactory and successful relationships.

Based on the previous studies, Cannon and Perreault (1999) specified six dimensions of business relationship, which were information exchange, operational linkages, legal bonds, cooperative norms, adaptations by sellers and adaptations by buyers. Based on these dimensions, they identified several types of business relationships. They showed that the types of relationship affected customer satisfaction and evaluation of supplier performance. It is important to understand the outcomes of different types of business relationships. They tried to investigate the customer evaluation of supplier performance. In their study, trust has been excluded from relationship dimensions (because of emphasis on operation elements of relationship). However, it was mentioned that information sharing (one of the considered dimensions) is unlikely to occur in the absence of trust.

The construct of high quality business relationships are considered to be trust, needs fulfilment (understanding each other's needs), supply chain integration, power, and profit by Naudé and Buttle (2000). The results of a cluster analysis showed that there is no one measure of just what constitutes a good relationship. Rather, there are potentially different types of "good" relationship, each composed of different blends of these five attributes.

3. Quantitative Types of Operationalization of Business Relationships

While the IMP Group tradition prefers to look at business relationships *per se*, i.e. at *dyadic* structures, the 'American' tradition adopts a focal company perspective within a business relationship, i.e. a *monadic* structure. However, it is unclear from a methodological point of view whether or not a dyadic structure necessarily and exclusively means a *qualitative operationalisation*, or if there exists such a thing as a *quantitative operationalization* of a dyad? This methodological challenge represents the starting point for the development of different types of quantitative operationalizations which differ with regard to their unit of analysis. An illustrative overview of the existing quantitative literature on business relationships is used to exemplify five different

operationalizations. In general, these types can be distinguished by their progression from a purely monadic point of view (i.e. focal company-centred) to a fully dyad point of view (i.e. relationship-centred) (see figure 1)

INSERT FIGURE 1 ABOUT HERE

3.1 Unit of analysis: focal company

Operationalizing business relationships based on a focal company-centred point of view represents the normal mode of quantitative research. However, one can distinguish two slightly different ways of operationalization:

3.1.1. Monadic operationalization. One actor within a business relationship (either buyer or seller) is singled out as the unit of analysis, i.e. the focal company. Certain independent or dependent constructs and variables are quantified (in the example of figure 1 the construct of 'commitment' is used for illustrative purposes), e.g. with regard to how strongly the actor exhibits the construct or variable in question in the business relationship: "Seller: How committed is your company to the business relationship with the buying company?". This way of operationalization is applied for testing the commitment-trust theory and measuring trust and commitment (Morgan and Hunt, 1994). Mohr et al (1996) also apply this method to measure commitment in interfirm relationships investigating the role of integration and control.

3.1.2. Antagonistic perceived monadic operationalization. Again, this represents a monadic operationalization. However, in cases of antagonistic perceived monads, the unit of analysis is the focal company's perception of how the antagonistic actor in the business relationship assesses the construct or variable: "Seller: How committed do you think is the buyer to the business relationship with you?" Supplier's commitment to the retailer is captured by asking the retailer questions such as "X is quite willing to dedicate whatever people and resources it takes to grow our sales" (Jap and Ganesan, 2000: 243).

3.2. Unit of analysis: comparative focal company (quasi dyad)

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A development of the monadic view has been introduced in the quantitative literature to capture the issue that business relationship characteristics are often measured as perceptional scores (e.g. as levels of agreement on Likert-scales). To compare different perceptions, an internally dyadic operationalization can be used based on multiple respondents from one firm. However, the unit of analysis is still a focal company.

3.2.1. Internal dyadic operationalization. This operationalization uses two (or more) respondents to capture their monadic perceptions relating to a variable or construct of the company vis-à-vis its exchange partner in the business relationship (this can be done as a classic monadic operationalization, or a as an antagonistic perceived monad). The different perceptions are then compared and a combined value is computed. "Seller, Respondent A: How committed is your company to the business relationship with the buying company? compared to Seller, Respondent B: How committed is your company to the business relationship with the buying company?". The two respondents forming the monads can have similar functions or hierarchy levels (in which case the operationalization relates to the consistency with which the variable or construct is held by different respondents within the focal company), or two different respondents in terms of function and hierarchy can be used, e.g. in order to find out the distinct perceptions of marketing versus sales managers in assessing the variable or construct in question.

It is noteworthy that this operationalization provides only a quasi dyadic perspective by focusing on an internal dyad without forfeiting a monadic orientation regarding the business relationship. However, even quasi dyads pose another interesting challenge regarding the comparative nature of the two constituting components (in this case the commitment assessments of Seller Respondent A and Seller Respondent B). Any (quasi) dyadic operationalization calls for a way of comparing or aggregating the different value of the dyad (usually Likert-style statement scores for the relevant variable or construct). The literature suggests several different ways to accomplish this:

  a. Value: In cases of value operationalizations, the average score of the variable or construct components are used, i.e. an overall mean score is calculated. The individual respondent scores may be weighted, e.g. by the respondents' relative experience levels, or the

strength with which they believe in their statements. For example at the seller-side data is collected from a pair of marketing executives and the average of the two responses is calculated (Deshpandé et al., 1993). In this study, at the other side of the business relationship (i.e. at the buyer-side) data is collected from a pair of informants and averaged.

b. Symmetry: In cases of symmetry operationalizations, not the scores themselves are of interest but the degree to which these scores overlap (in this case within an internal dyad). The simplest way is to deduct the higher score from the lower score to reach a symmetry score Thus, two respondents scoring their company's commitment as 2 and 6 on a 7-point Likert scale would produce an unweighted value score of 4, the same as another two respondents scoring 4 and 4. However, their relative symmetry scores would be 4 in the first case (i.e. a high asymmetry of scores) and 0 in the second case (i.e. a perfect symmetry).

c. Directional Symmetry: Symmetry operationalization can also indicate directionality, for example if it is important for a research question which kind of respondent has scored higher. In these cases, the score of one respondent category (e.g. marketing managers) is always deducted from the score of the other (e.g. sales managers). This also allows negative scores to emerge.

Unit of analysis: dyad

While the first three operationalizations exhibit a monadic perspective regarding the research phenomenon of the business relationships, the last two provide real dyadic analyses and are therefore aligned with an interaction model focusing on the characteristics of the inter-firm relationship itself. The two operationalizations differ regarding the sources to capture relevant data.

4. Perceived dyadic operationalization. A perceived dyad approximates a real dyadic operationalization by relating a monadic perspective to a matching antagonistic perceived monad. As such, the unit of analysis is the dyad itself, i.e. the interaction as made up of the behaviours and attitudes of the relevant actors (buyer and seller). However, the variables and constructs relating to

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these behaviours and attitudes are collected only from one side of the dyad (in our example from the seller). Thus, in a perceived dyadic operationalization, the monadic perspective ("Seller: How committed is your company to the business relationship with the buying company?") is compared to the same seller's assessment of the buyer's perspective ("Seller: How committed do you think is the buyer to the business relationship with you?"). Again, this operationalization can be done as value, symmetry, or directional symmetry scores. Mohr et al (1996) apply such operationalization for measuring collaborative communication. The dealer communication frequency and manufacturer communication frequency are added together for the measure of total communication frequency. Dependence of industrial distributor and dependence of organizational customer is measured by asking the customer questions regarding their dependence on the distributor and their perception of dependence of the distributor on them. Then they calculate average total and asymmetry of these scores. Asymmetry is considered by calculating the absolute asymmetry and then the directionality of the asymmetry is implied by two dummy variables. This method is used by Jap and Ganesan (2000); they measure retailer's dependence on the supplier and retailer's perception of the supplier's dependence both questioned from the retailer-side respondent. In order to aggregate these data they calculate interdependence magnitude (the product of the retailer's dependence on the supplier and its perception of the supplier's dependence on the retailer) and interdependence asymmetry (the difference between the supplier's dependence and the retailer's dependence on the supplier).

The perceived dyad has been categorised as a 'real' dyad, not a quasi dyad, as the logic of the operationalization itself relates to the unit of analysis of the business relationship. However, the component scores are collected from one focal company. As such, the perceived dyadic operationalization represents a substitute for real dyadic data, e.g. in cases where collecting dyadic data from both interaction partners is too difficult.

5. *Dyadic operationalization*. A dyadic operationalization focuses on the business relationships characteristics by juxtaposing the behaviours and attitudes (in our case 'commitment to the relationship') as exhibited by the seller and the buyer in this relationship. Both component part of the operationalization are collected monadically, i.e. from the organisation exhibiting these behaviours

and attitudes (and not as perceived monads). Thus, buyers and sellers are asked the same question about the same business relationship, and then the answers are compared and aggregated: "Seller: How committed is your company to the business relationship with the buying company?" compared to Buyer: How committed is your company to the business relationship with the selling company?". As with all dyadic and quasi dyadic operationalizations, the final construct score can be calculated a value, symmetry, or directional symmetry. After collecting data from a focal company as one side of the dyads and its clients as the other side of the dyads, both value and asymmetry are assessed in the studies of Straub et al. (2004) and Klein et al. (2007) for constructs such as trust and relationship-specific investments. In this operationalization, asymmetry is captured on basis of dividing the lesser value (between the buyer measure and the seller measure) by the greater value.

Deriving a Dyadic Quantitative Operationalizations

Based on these theoretical discussions, and the illustrative categorisation of existing literature on business relationships, it can be argued that even within the interaction model of the IMP tradition, quantitative research can be used. This is due to the fact that certain operationalizations can operate on the level of the business relationship as the unit of analysis. However, from the different operationalizations only the dyadic ones are commensurable with IMP tradition. This implies arguably a wider interpretation of the interaction model, in line with a methodological pluralism. The time and space-specificity of the interaction morphology (Ford and Hakansson, 2006) cannot be grasped fully with dyadic quantitative operationalizations. For 'thick' descriptions there is is no alternative to qualitative research. However, this may not be necessary or appropriate for certain research questions.

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1. Monad

Seller → Buyer

'Commitment of the seller to relationship'

2. Antagonistic Perceived Monad

Seller ⟷ Buyer

'Commitment of the buyer to relationship as perceived by seller'

3. Internal Dyad

Seller (A, B) ⟹ Buyer

Interaction of 'Commitment of the seller to relationship' as seen by respondent A' and 'Commitment of the seller to relationship' as seen by respondent B
(as Value, Symmetry, or Directional Symmetry)

4. Perceived Dyad

Seller ⟷ Buyer

Interaction of 'Commitment of the seller to relationship' and 'Commitment of the buyer to relationship as perceived by seller'
(as Value, Symmetry, or Directional Symmetry)

5. Dyad

Seller ⟷ Buyer

Interaction of 'Commitment of the seller to relationship' and 'Commitment of the buyer to relationship'
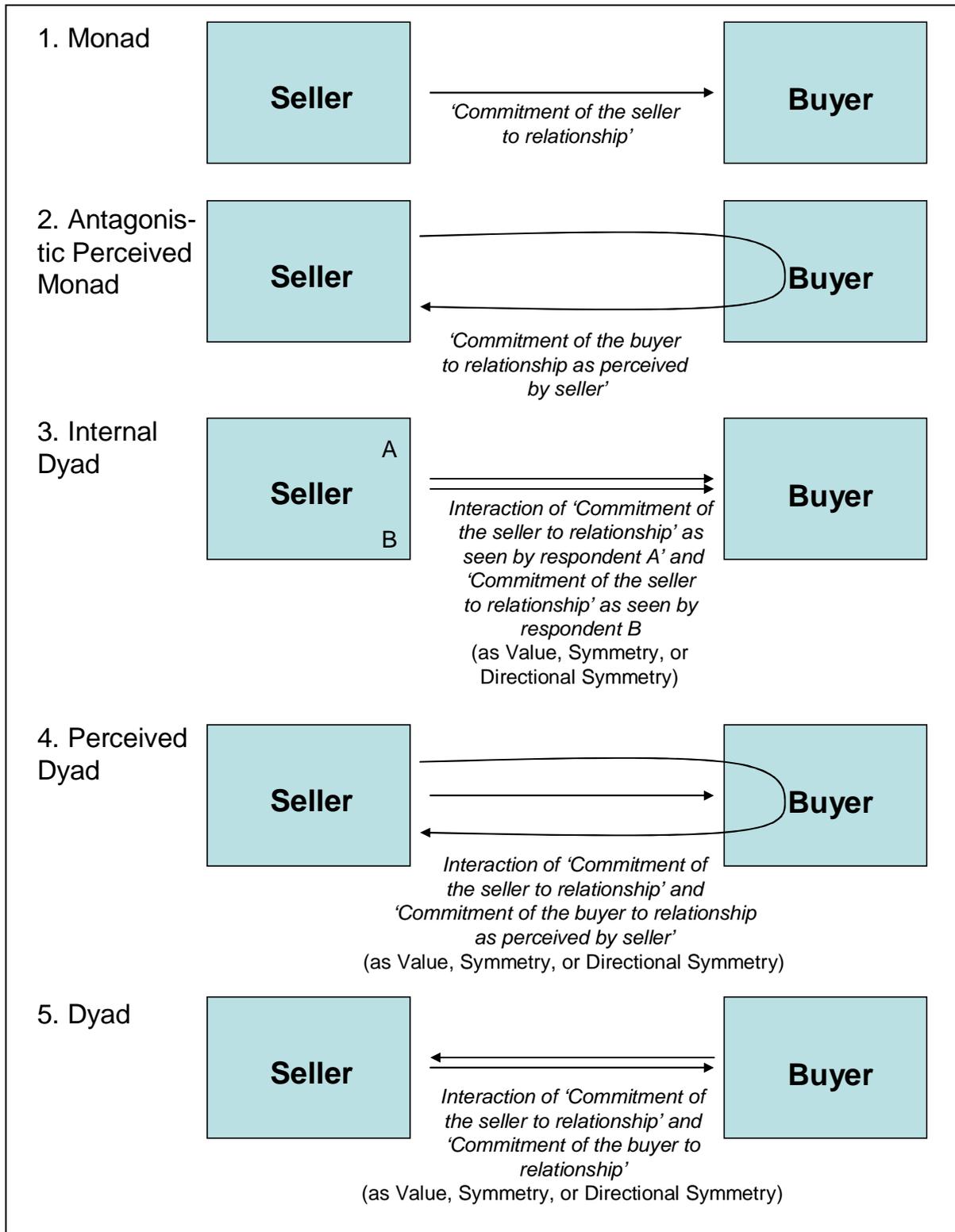(as Value, Symmetry, or Directional Symmetry)

Figure 1: Types of quantitative operationalizations of business relationships (examples use the construct of 'commitment to the business relationship')

Table 1: Overview of research on business relationships

Source	Business relationship emphasis	Method	Finding
Håkansson et al., 1976	The interaction process in business relationships	Case studies	• The buying firms' need and the selling firms' alternative influence tactics to those needs
Håkansson and Wootz, 1979	Need for a new approach instead of marketing-mix	Conceptual supported by some cases	• Characteristics of interactions between buyer and sellers in industrial markets, need for the IMP project
Ford, 1980	Business relationship development	Conceptual based on IMP project	• Five stages for business relationship development • considered experience, uncertainty, distance, commitment, adaptation as variables for identifying the stages
Håkansson, 1982	The importance of relationships, interactions and networks in business marketing	IMP project: Over 800 interviews using common questionnaires	• The network/interaction theory
Ford, 1984	The role of suppliers' technical skills, commercial skills and relationship management skills on industrial purchasers' assessment of the supplier	Based on IMP project, self administered questionnaires, the questionnaires are administered after a detailed interview	• Strong association between buyers' assessment of the technical and commercial skills of their suppliers and buyers' commitment • Association between buyer assessment of suppliers' technical and commercial skills and suppliers' relationship management skills
Crosby et al., 1990	Relationship quality between customer and salesperson	Survey in a service industry (whole life insurance)	• The relationship quality model is advanced and tested, in which consequences and antecedents of relationship quality are examined.
Anderson et al., 1994	Dyadic business relationships within a business network context	Case study and a survey based on SEM	• Greater attention should be directed to business network context.
Ganesan, 1994	Determinants of long-term orientation in business relationships	Mixed qualitative (interviews, pretest) and quantitative (mail survey)	• Trust and dependence play key roles in determining the long-term orientation of both retail buyers and their vendors.
Mohr and Spekman, 1994	Addressing the characteristics of partnership that are associated with its success	Survey on partners in computer manufacturer–dealer relationships	• Main characteristics of any successful partnership are commitment, coordination and trust; communication quality and participation; and conflict resolution through joint problem solving.
Storbacka et al., 1994	How relationship quality leads to profitability	Conceptual model supported by examples from financial services sector	• A relationship profitability model from service quality to customer relationship profitability
Wilson and Jantrania, 1995	Elements of a successful relationship, value creation relationships	Conceptual framework	• Characteristics of a successful business-to-business relationship
Brennan and Turnbull, 1997	Adaptation in business relationships	Dyadic case studies of 13 inter-firm relationships	• Suggesting consideration of relevant third-party organizations in order to conduct research on adaptation
Ford et al., 1998	Customers' uncertainties and suppliers' influence tactics, suppliers' uncertainties and customers' influence tactics	NA (Book)	• Customers uncertainties: need, market, transaction; suppliers' influence tactics: problem-solving ability and transfer ability • Suppliers' uncertainties: capacity, application, transaction; customers' influence tactics: demand ability and transfer ability
Cannon	Business relationship	Mixed quantitative and	• Identified several types of business

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and Perreault, 1999	types and their antecedents and outcomes	qualitative: a pilot test followed by a pretest followed by the final survey	relationship based on dimensions of business relationships. • Types of relationship affect customer satisfaction and evaluation of supplier performance.
Naudé and Buttle, 2000	Relationship Quality	Survey	• Dimensions of high quality business relationships: trust; needs fulfilment; supply chain integration; power; and profit • There is no one measure of just what constitutes a good relationship. Rather, there are potentially different types of "good" relationship, each composed of different blends of these five attributes.
Håkansson and Ford, 2002	Companies' interaction in business networks	Conceptual	• Importance of understanding relationships and networks • Dependence of answers to questions about interactions on the specific situation and context
Roxenhall and Ghauri, 2004	Written contracts	Case study	• Contracts can be used to reduce uncertainty, especially when there is a lack of trust between parties.
Mouzas, 2006	Umbrella agreements	Case study	• Parties can try to balance the need for certainty by negotiating umbrella agreements.
Ulaga and Eggert, 2006	Differentiation through value creation in business relationship	Mixed qualitative and quantitative	• Relationship benefits are stronger than costs considerations in creating value-based differentiation. • Service support and personal interaction are the core differentiators, followed by a supplier's know-how and its ability to improve customer's time to market; price shows the weakest potential for differentiation.